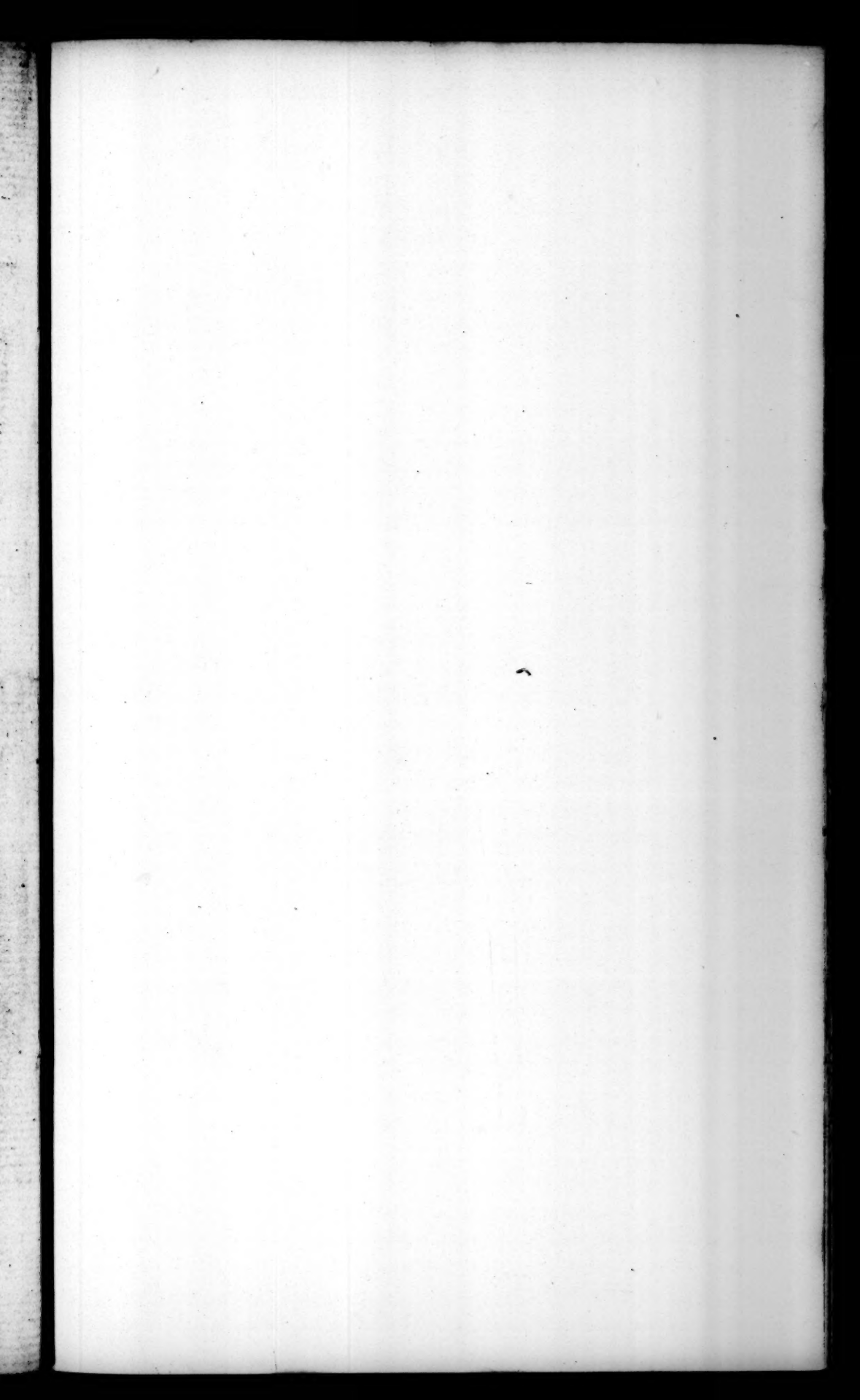




OBSERVATIONS
ON THE STATE OF
POPULATION
IN
MANCHESTER;

AND OTHER ADJACENT PLACES;

BY

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&c. &c.

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THE following Observations, on Population, are inserted in the Author's Essays Medical, Philosophical, and Experimental Vol. II. Edit. Fourth; which is now in the Press. A few Copies have been printed separately, for distribution amongst the Author's Friends, who have aided his Inquiries by their Communications.



ESSAY I.

OBSERVATIONS ON THE STATE OF POPULATION

IN

MANCHESTER,

AND OTHER ADJACENT PLACES^(a).

FROM an account taken in 1717, the number of inhabitants in Manchester, for I am uncertain whether Salford ^(b) was included, appears to have been 8000.

By a survey made in 1757 of Manchester and Salford, the number of inhabitants was

^(a) Inserted in the Philosophical Transactions, vols. LXIV. LXV. LXVI.

^(b) MANCHESTER and SALFORD, though distinguished by different names, like London, Westminster, and the Borough of Southwark, may be considered as one and the same town, being divided only by a small river, over which two bridges are erected.

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found

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found to be 19839. And from 1754 to 1761 inclusive, the number of deaths amounted to 5769. The annual deaths therefore, at the period of the survey, must have been 721, exclusive of dissenters. It is probable, as will appear afterwards, that these would have increased the number to 771. At this time therefore 1 in 25.7 of the inhabitants of Manchester died every year.

A NEW survey of Manchester has been executed this summer (1773) with great care and accuracy, of which the following is a particular account.

MANCHESTER.		SALFORD.
3402	Houses	866.
5317	Families	1099.
10548	Males	2248.
11933	Females	2517.
7724	Married	1775.
432	Widowers	89.
1064	Widows	149.
7782	Under 15	1793.
3252	Above 50	640.
342	Male Lodgers	18.
150	Female ditto	13.
44	Empty Houses	26.

FROM hence it appears that the number of tenanted houses in Manchester and Salford amounts

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amounts to 4268; the families to 6416; and the inhabitants to 27,246. The proportion of persons to a house therefore is more than $6\frac{1}{3}$; and of individuals to a family about $4\frac{1}{4}$. The females exceed the males by 1654; the widows are more than double the number of widowers; and about a seventh part of the inhabitants have attained the age of fifty.

The following Table is formed from the Register of Burials and Baptisms at the Collegiate or Parish Church in Manchester, and gives the annual number of each on an average.

		Burials.	Baptisms.
From 1580 to 1587 inclusive,		184	
1680	1687	286	
1720	1727	359	
1754	1760	736	769
1761	1765	731	843
1766	1770	870	970

BUT it should be remarked, that this account does not include the deaths or births amongst the dissenters. These, by a late improvement in our Bills of Mortality, are now received into the Parish Register; and last year (1772) the former amounted to 50, the latter to 181. Admitting these to be the average of unregistered baptisms and burials in Manchester, the annual medium of deaths from 1768 to 1772 inclusive,

will be 958. And the annual births during the same period, with the like allowance, will be 1098. Hence the present proportion of annual deaths to the inhabitants is nearly as 1 to 28 .4; and of births to the inhabitants almost as 1 to 25. The births also, it appears, exceed the burials 140 every year at a medium.

THE rapid growth of Manchester is sufficiently evident from the preceding facts. Yet Liverpool, during the same space of time, has increased in a much greater proportion. This appears from the following Table, which I have extracted from a very curious and entertaining work, lately published by my ingenious friend the Rev. Dr. Enfield, Lecturer on the Belles Lettres in the Academy at Warrington.

(c) Year,	Number of Inhabitants.	Annual Addition.
1700	5714	
1710	8168	245
1720	10446	227
1730	12074	162
1740	18086	601
1750	22099	401
1760	25787	368
1770	34004	822

(c) History of Liverpool, page 28, second edition, corrected.

ACCORDING

ACCORDING to this Table, Liverpool has at present upwards of six times the number of inhabitants which it contained at the beginning of the century.

BUT the progress of trade and opulence in Manchester has been more than adequate to its advancement in population. For a considerable part of the manufactory of this flourishing town, is carried on in the adjacent country, which is thereby crowded with houses and inhabitants. So populous are the environs of Manchester, that every house in the township has been found, by a late survey, to contain, at an average, six persons. The township is indeed but of small extent; and the greatest part of it will probably, in a short time, be included in Manchester. It contains 311 houses; 361 families; 947 males; 958 females; 656 married persons; 21 widowers; 42 widows; 763 under 15 years of age; and 222 above 50.

It is pleasing to observe, that, notwithstanding the enlargement of Manchester, there has been a sensible improvement in the healthiness and longevity of its inhabitants; for the proportion of deaths is now considerably less than in 1757. But this is chiefly to be ascribed, as Dr. Price has justly observed (*d*), to the large accession of

(*d*) SEE a most valuable Treatise on Reversionary Payments, p. 188, third edition.

new settlers from the country. For as these usually come in the prime of life, they must raise the proportion of *inhabitants* to the *deaths*, and also of *births* and *weddings* to the *burials*, higher than they would otherwise be. However, exclusive of this consideration, there is good reason to believe that Manchester is more healthy now than formerly. The new streets are wide and spacious, the poor have larger and more commodious dwellings, and the increase of trade affords them better clothing and diet than they before enjoyed. I may add too, that the late improvements in medicine have been highly favourable to the preservation of life. The cool regimen in fevers, and in the small-pox; the free admission of air; attention to cleanliness; and the general use of antiseptic remedies and diet, have certainly mitigated the violence, and lessened the mortality of some of the most dangerous and malignant distempers to which mankind are incident. The ulcerous sore throat, which prevailed here in the year 1770, is the only epidemic which has appeared in Manchester, with any fatal degree of violence, for many years. Miliary fevers, which were formerly frequent in this town and neighbourhood, now rarely occur; and if I may judge from my own experience, the natural small-pox (for inoculation is not much practised here) carries off a smaller proportion of those
who

who are attacked by it, than is commonly supposed. Puerperal diseases also decrease every year amongst us, by the judicious method of treating women in child-bed: and as nature is now more consulted in the management of infants, it is reasonable to suppose that this must be favourable to their health and preservation.

BUT it must be acknowledged that large towns are injurious to population; and the advantages I have enumerated, which in hamlets or country villages would have operated with full force to the benefit of mankind, have only served to check the destructive tendency of the accumulation of inhabitants in Manchester. In the Pais de Vaud, a district of the province of Bern in Switzerland, and in a country parish in Brandenburg, 1 in 45 of the inhabitants die annually; and at Stoke Damarell in Devonshire, 1 in 54^(e): whereas in this town the yearly mortality appears to be 1 in 28; in Liverpool 1 in 27; and in London 1 in 21. Half the children who are born in Manchester die under five years old; and the proportion which the births bear to the number of inhabitants who attain the age of 80, is as 30 to 1. Diseases are most frequent and fatal here in the months of January, February, and March; and

(e) SEE the Treatise before referred to, on Reversionary Payments, by my learned friend Dr. Price.

least so in July, August, and September. The mortality of these two seasons is as 11 to 8; and of the first six months of the year compared with the last six months, as 7 to 6.

IN April, 1773, several gentlemen, from motives of curiosity, undertook an enumeration of the people of BOLTON, a manufacturing town about twelve miles distant from Manchester. The houses were found to be 946; the males 2159; the females 2392; and persons aged seventy years and upwards, 74. To these numbers 17 must be added, which by a mistake were not classed under either denomination. The inhabitants of Bolton therefore amount to 4568; the number of individuals to a house is 4.8; and about a sixtieth part of the people have attained the age of seventy.

LITTLE BOLTON, a suburb of Bolton, including the manor, and extending into the country as far as the inhabitants are subject to *suit* and *service*, contains 232 houses; 771 individuals; 361 males; 410 females; and 15 persons aged seventy years and upwards. From this account it appears that the inhabitants are 3.3 to a house; and that 1 in 51 has reached the age of seventy. The difference in these proportions between a small *town*, and a *country manor* contiguous to it, is worthy of observation.

MR.

MR. FLETCHER has favoured me with an enumeration of the people of BURY, which he has just executed with great care. The town contains 463 houses; 464 families; and 2090 inhabitants. Each house and family therefore consists of $4\frac{1}{3}$ individuals. Bury is situated nine miles from Manchester, and is enriched by a branch of the woollen manufactory.

AT ALTRINGHAM, a market town in Cheshire, which has no manufactory, the number of houses, according to an exact survey made in July, 1772, was 248; of inhabitants 1029, or $4\frac{1}{7}$ to a house. An enumeration of the people of this town was made about twenty years ago, at which time they amounted very nearly to 1000.

THE following is a comparative view of the state of population, the duration of life, and the mortality of the several seasons of the year, &c. in EASTHAM, and ROYTON, two country places widely different from each other in climate, situation, and in the occupation of their inhabitants.

THE parish of Eastham lies in Wirral, one of the hundreds into which Cheshire is divided, and is extended along the banks of the river Mersey, a few miles distant from the Irish sea. The people are most of them farmers; though some are fishermen, and others are employed in the ferry to Liverpool.

ROYTON

ROYTON is a chapelry, situated ten miles eastward of Manchester, under the great chain of mountains which divides Lancashire and Yorkshire. The inhabitants are employed chiefly in the cotton and linen manufactory; a few of them are farmers; and some I believe work in the coal pits, with which this country abounds.

I AM indebted to my learned friend the Rev. Mr. Travis, Vicar of Eastham, for the survey of his own parish, which he undertook at my desire, and executed himself; and also for that of Royton, which was made by his uncle, the worthy and respectable clergyman of that chapelry.

JANUARY 1st, 1772, the number of inhabitants in the chapelry of Royton were found to be 1105.

The number of inhabitants in the parish of Easfham, 912.

The number of persons <i>in a house</i> , in the chapelry of Royton is somewhat more than	-	-	5 $\frac{1}{2}$.
The number of ditto, - in the parish of Easfham,	-	exactly	-
The number of persons <i>in a family</i> , in the former, on an average,	-	about	4 $\frac{3}{4}$.
The number of ditto, - in the latter,	-	more than	4 $\frac{1}{2}$.
The proportion of males to females, in Royton,	-	nearly as	53 to 56.
The proportion of ditto, - in Easfham,	-	nearly as	54 $\frac{1}{2}$ to 56.
The widows to the widowers, - in Royton,	-	as	3 $\frac{1}{2}$ to 1.
The widows ditto, - in Easfham,	-	as	3 to 2 $\frac{1}{2}$.
The number of births in Royton (on an average of 3 years) 42.	} Proportion between males and females as 13 to 11.		
The number of ditto, - in Easfham ditto, 34.	} Proportion between ditto, - as 18 to 16.		

N. B. These proportions for 7 years.

The number of births in Royton to the number of married inhabitants, as (very nearly) 1 child to 5 married couples.			
The number of do. in Easfham to ditto, - as (somewhat more than) 1 child to 4 married couples.			
The number of births in Royton to the whole number of inhabitants, - as	-	-	1 to 26 $\frac{1}{2}$.
The number of do. in Easfham to ditto, - as	-	-	1 to 26 $\frac{3}{4}$.
The number of married persons in Royton to the number of unmarried persons above 15, - as	-	-	8 to 5.
The number of ditto, - in Easfham to the number of - ditto, - nearly as	-	-	6 to 5.

The number of burials in Royton (on an average of 3 years)		21.	} Proportion between males and females as 13 to 10.	
The number of ditto in Easfham	- ditto	-	26.	as 14 to 12.
The number of burials in Royton to the number of all the inhabitants,		-	-	-
The number of ditto in Easfham to	- ditto,	-	-	as 1 to 52.
The number of children dying under 3 yrs. old to the number of children born in Royton (on an average of 3 yrs.) as 1 to 7.		-	-	as 1 to 35.
The number of children	- ditto	-	-	as 1 to 17.
Perfons alive in Royton under 3 years old Jan. 1, 1772, 129; dead under 3 years old, average of 3 years, 6, or 1 of 21½.		-	-	-
Ditto in Easfham	-	-	-	dead 2, or 1 of 50.
Perfons alive in Royton under 15 years old Jan. 1, 1772, 450; dead under 15 years old, average of 3 years, 11, or 1 of 41.		-	-	-
Ditto in Easfham	-	-	-	dead 4, or 1 of 82.
Perfons alive in Royton between 15 and 30 years old Jan. 1, 1772, 333; dead before 1773 of these 5, or 1 of 66½.		-	-	-
Ditto in Easfham	-	-	-	dead 5, or 1 of 40.
Perfons alive in Royton from 30 to 40 years old ditto, 96; dead before 1773 of these on an average, 2, or 1 of 48.		-	-	-
Ditto in Easfham	-	-	-	dead 4, or 1 of 31.
Perfons alive in Royton from 40 to 50 years old ditto, 98; dead before 1773 of these on an average, 2, or 1 of 49.		-	-	-
Ditto in Easfham	-	-	-	3, or 1 of 28.
Perfons alive in Royton from 50 to 60 years old ditto, 61; dead before 1773 of these		-	-	1½, or 1 of 45.
Ditto in Easfham	-	-	-	2, or 1 of 32.

Persons alive in Royton from 60 to 70 years old ditto, 49;	dead before 1773 of these	-	-	1 $\frac{1}{2}$, or 1 of 36.
Ditto in Eastham	-	-	-	54; dead before 1773 of these
Persons alive in Royton from 70 to 80, Jan. 1, 1772, 10	above 70 years, 18	{	dead before 1773, on an	1 of 18.
80 to 90, ditto, 8			average of 3 years,	
Persons alive in Eastham from 70 to 80, ditto, 34	above 70 years, 39	{	dead before 1773, on an	1 of 21.
80 to 90, ditto, 5			average of 3 years,	

(f)

THE mortality of the seasons at Royton and Eastham, for the last seven years, has been as follows:

	ROYTON.	EASTHAM.
January, February, March,	39	56
April, May, June,	31	34
July, August, September,	31	45
October, November, December,	18	53
	119	188

(f) THE averages here adopted may, in some instances, seem to be too small; but Mr. Travis assures me, that through a series of fifteen successive years, the marriages, births, and deaths at Eastham, do not vary, in any degree worth remarking, from the foregoing table.

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OF all the months in the year singly taken, October is the most, and April the least fatal to the inhabitants of Eastham. Whereas the three last months of the year appear to be the most healthful at Royton; although a very large quantity of rain usually falls there during this season. For the wind at this time being generally westerly, the clouds are intercepted by the high mountains, and discharge themselves in frequent and heavy showers. At Townley, which is situated under the same chain of hills, and is not very far distant from Royton, 42 inches of rain fall at a medium, every year. The quantity of rain at Manchester, which is farther removed from the mountains, is about 33 inches *communibus annis* (g). It has been observed by a very useful writer, that the *moist seasons* in Great Britain and Ireland are more remarkably free from epidemic diseases, than the dry ones; and that storms, the usual concomitants of rain, are attended with more health and less sickness than calm weather, probably because they dissipate the vapours, which by stagnation might prove an occasion of various distem-

(g) THE rain-gauge at Townley appears to have been placed on the top of the house; whereas, at Manchester, this instrument was very near the ground. It is evident, therefore, that the disparity must be estimated at much more than nine inches.

pers

pers (*b*). I shall not presume to determine, that these observations account for the superior healthiness of the last months of the year at Royton; but they certainly should remove the prejudice which is too generally entertained against the wetness of the climate in Lancashire, and other western counties of England. For the bounties of Providence are dispensed with an equal, as well as with a liberal hand. And if we, in this part of the island, enjoy less sunshine than our neighbours, we have milder winters, and summers tempered with more refreshing showers, to balance the inconvenience.

THE Rev. Mr. Bolton, a very worthy dissenting clergyman at MONTON, a few miles from Manchester, has at my request, made an enumeration of his people, with a retrospective view of the births and deaths amongst them during the last ten years. By this survey, his congregation, including servants, consists of 196 males; 190 females; 97 families; 60 married persons; 14 widowers; 13 widows; 142 under 15 years of age; and 64 above 50. The deaths during ten years have been 57, and the births 138. Hence it appears, that of this society 1 in 6 has attained the age of 50; that the births are more than double the burials;

(*b*) Rutty's Chronological History of Weather.

and that only 1 in 68, at a medium, dies every year. The last circumstance is somewhat extraordinary; but to remove all doubts concerning the accuracy of his enumeration, Mr. Bolton, with the most obliging assiduity, has repeated it twice. And he has derived his information not only from the register of his chapel, but also from the private records, or deliberate recollection of every family in his congregation. The *situation* of Monton appears to be rather unfavourable to health, from the vicinity of a large moss; but the people are most of them farmers, and are remarkable for their diligence and sobriety. The long life which they enjoy affords a striking and pleasing proof of the great advantages of temperance; and confirms a curious observation of M. Muret, who examined the register of mortality in one town, to mark those whose deaths might be imputed to *excess*. The number of these he found so great, as led him to believe that *drunkenness* is more destructive to mankind than pleurisies, fevers, or the most malignant distempers.

AUG. 16, 1773.

FARTHER

FURTHER OBSERVATIONS

ON THE

STATE *of* POPULATION *in* MANCHESTER, *and*
other ADJACENT PLACES.

THE number of inhabitants and progress of population in the kingdom; the increase or decrease of certain diseases; the comparative healthiness of different situations, climates, and seasons; and the influence of particular trades and manufactures on the duration of life, are subjects of the highest importance to the community; and equally interesting to the statesman, the philosopher, and the physician.

"I have somewhere read," says Dr. Franklin (in the remarks on my former paper with which he has lately favoured me) "that in China an account is yearly taken of the number of people; and of the quantities of provision produced. This account is transmitted to the Emperor, whose ministers can thence foresee a scarcity likely to happen in any province, and from what province it can best be supplied in good time (*a*). To facilitate the collecting of this account, and prevent the necessity

(*a*) CHINA, like all other countries that subsist chiefly upon rice, is subject to frequent famines. *Montesquieu*.

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“ of entering houses, and spending time in asking and answering questions, each house is furnished with a little board, to be hung without the door during a certain time each year; on which board are marked certain words, against which the inhabitant is to mark *number* or *quantity*, somewhat in this manner :

<i>MEN</i>
<i>WOMEN</i>
<i>CHILDREN</i>
<i>RICE or WHEAT</i>
<i>FLESH, &c.</i>

“ ALL under sixteen are accounted children, and all above, men and women. Any other particulars, which the government desires information of, are occasionally marked on the same boards. Thus the officers appointed to collect the accounts in each district, have only to pass before the doors, and enter into their book what they find marked on the board, without giving the least trouble to the family. There is a penalty on marking falsely; and as neighbours must know nearly the truth of each other's account, they dare not expose themselves, by a false one, to each other's accusation.

“ Perhaps

"Perhaps such a regulation is scarcely practicable with us."

BUT an enumeration of the people of England, similar to that lately executed at Manchester, would not be so difficult an undertaking, as may at the first view be imagined. And if accurate, and comprehensive Bills of Mortality were universally established, they would admirably coincide with the views of such inquiries, and give precision and certainty to the conclusions deduced from them (*b*).

FROM the populousness of this neighbourhood, it may perhaps be supposed, that a great number of burials are brought from the country to the collegiate and other churches in Manchester, and that this circumstance is likely to create uncertainty and error in the calculations made from the parochial register of deaths. But it appears, from the best information I can collect, that the number of such burials is not considerable; and that they are pretty exactly balanced by those which are carried out of Manchester to the neighbouring episcopal or dissenting chapels. This fact admits of an easy and satisfactory

(*b*) See Proposals for establishing accurate Bills of Mortality in Manchester, vol. I. p. 428. These Proposals have been adopted, and, with a few variations, carried into execution by Dr. Haygarth at Chester, Dr. Dobson at Liverpool, and by Mr. John Aikin at Warrington.

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explanation, were it necessary to trouble the reader with it.

It is remarked, in the former paper, that wet seasons are generally more free from epidemic diseases than dry ones, and the Bills of Mortality at Manchester *seem* to confirm the observation: It appears at least from the following table, that the year 1766, remarkable in this climate for the small quantity of rain which fell during the course of it, was more fatal than any of the rest. And the proportion of deaths will be deemed greater, when it is recollected, that the town contained at that time fewer inhabitants probably, by two thousand, than it does at present. For the rapid increase of Manchester commenced about the year 1765, after the conclusion of the last war.

Year.	Quantity of Rain at Manchester. Inches.	Deaths at Manchester.
1765	31. 378	723
1766	25. 762	1019
1767	29. 186	690
1768	40. 526	867
1769	32. 514	788
1770	39. 363	988
1771 from Jan. 1. to June 1. }	6. 8 (c)	

THIS

(c) THIS account of the quantity of rain, was communicated to me by George Lloyd, Esq. F. R. S. The observations

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THIS table, it must be acknowledged, does not comprehend a sufficient length of time to

tions were made at his seat, about a mile distant from the centre of Manchester, and were continued only till June 1771.

THE following is an abridged view of a meteorological register, which I kept, with great exactness, during the years 1774 and 1775.

Months.	1774.		Days.	
	Thermometer.		Rainy.	Dry.
	Two o'Clock P. M. Highest.	Lowest.		
Jan. Feb. March,	56.	28.	25.	65.
April, May, June,	72.	45.	55.	36.
July, Aug. Sept.	75.	53.	66.	26.
Oct. Nov. Dec.	60.	30.	43.	49.
Mean heat		52,25.	189.	176.

1775.				
Jan. Feb. March,	54.	30.	61.	29.
April, May, June,	78.	51.	42.	49.
July, Aug. Sept.	74.	48.	62.	30.
Oct. Nov. Dec.	64.	32.	50.	28.
Mean heat		55.7	215.	136.

N. B. IN 1775, fourteen days are omitted, no account being taken.

THE thermometer was made by Dollond, and graduated according to the scale of Fahrenheit. It was placed in the open air, and in a northern exposure. The column of rainy days expresses the *least*, as well as the *greatest* quantity of rain; the column of days includes only those days, in which not a single shower was noticed. The day comprehends twenty-four hours.

admit of any very accurate or incontrovertible conclusions. And the influence of other causes of disease, which have little or no relation to the state of the atmosphere, together with the irregularity which necessarily occurs in the annual increase of a large manufacturing town, may be regarded as farther sources of fallacy and uncertainty. It is therefore with diffidence I observe, that though wet seasons are less mortal than long continued droughts, yet the rainy years 1768 and 1770 proved extremely sickly and fatal. And those years are probably most unfavourable to health, in which heavy rains fall about the beginning of summer, and are succeeded by great and uninterrupted heats. For the earth being thus drenched with moisture, and the low lands overflowed with water, the exhalations become constant, copious, and often putrid.

JOAN LEO in his history of Africa relates, that if heavy rains fall in that country during the months of July and August, the plague usually breaks out the September following (*d*). But in European climates, it is well remarked by Sir John Pringle, that frequent showers in summer cool the air, check the excess of vapour, dilute and refresh the corrupted waters,

(*d*) Hist. Africae, lib. I. cap. 10.

and precipitate the noxious effluvia which float in the atmosphere (*e*). And it appears, from a variety of observations which I have collected, that October, November, and December are generally very healthy, although the most rainy months in the year. I shall subjoin a table which will set this point in the clearest light; and at the same time shew the comparative mortality of the different seasons at Middleton, Bowden, Chowbent, Dishley, Middlewich, Richmond, and Manchester. (*f*)

(*e*) See Sir John Pringle on the Diseases of the Army, p. 5, edit. fourth.

(*f*) *Extract of a letter from Dr. Farr, dated April 13, 1782.*

“BEFORE I left the Bristol Infirmary, I took an account of all the diseases which occurred in it for a number of years; and as all acute cases are admitted, it is, in general, an epitome of the state of diseases in the town. I have sent you an account for three years, during which time I kept a register of the rain.”

	1775	1776	1777
Synochus - - -	166	95	137
Typhus - - -	35	21	33
Intermittents - -	16	14	4
Pleurisies and Peripneumonies	20	43	25
Inflammations - -	8	15	18
Acute Rheumatism - -	52	66	64
	297	254	281

Rain. Inches, - - - 38,597, 28,554, 23,369

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A TABLE shewing the COMPARATIVE MORTALITY of the different SEASONS of the YEAR.

	Middleton from 1663 to 1673 Ten years.	Middleton from 1763 to 1773. Ten years.	Bowden from 1663 to 1673. Ten years.	Bowden from 1763 to 1773. Ten years.	Manchester from 1766 to 1774.* Eight years.
January, February, March,	117.	265.	179.	259.	1538.
April, May, June,	99.	291.	139.	300.	1366.
July, August, September,	79.	215.	114.	209.	957.
October, November, December.	72.	222.	127.	207.	1339.

* This account is taken from the register of the collegiate or parish church only.

Chowbent

	Chowbent from 1767 to 1773. Six years.	Difhley from 1763 to 1773. Ten years.	Middlewich from 1768 to 1773. Five years.	Richmond from 1764 to 1774. Ten years.	Rochdale from 1760 to 1773. Thirteen years.
January, February, March,	71.	64.	67.	170.	1533.
April, May, June,	37.	78.	55.	156.	1336.
July, August, September,	28.	51.	59.	172.	1077.
October, November, December.	33.	43.	69.	144.	1239.

Total,

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Total.	Jan.	Feb.	March,	4263.
	April,	May,	June,	3857.
	July,	Aug.	Sep.	2961.
	Oct.	Nov.	Dec.	3495.

THERE is a considerable diversity in the situation of these places. Middleton lies six miles north east of Manchester, not far from the great chain of mountains which divides Lancashire and Yorkshire; and about thirty-six miles from the sea.

BOWDEN is ten miles to the south west of Manchester, and thirty-five miles from the sea. It is an elevated situation, in a level country; and at a great distance from any hills.

CHOWBENT is ten miles westward of Manchester, and twenty five miles distant from the sea. It is in a low and flat situation, and near a very extensive morass.

DISHLEY is in that part of Cheshire, which borders on the peak of Derbyshire. It is a mountainous situation, thirteen miles south east of Manchester, and fifty miles from the sea.

MIDDLEWICH is twenty eight miles southward of Manchester, and about forty miles from the sea. It is surrounded by a well cultivated and level country.

RICHMOND is a considerable market town in the north riding of Yorkshire, about forty miles distant

distant from the German ocean. It stands on an eminence, which terminates a long continued range of mountains. The country below is an extensive, rich, and well cultivated plain.

THE observations of Dr. Franklin on the subject of moisture will, I doubt not, be very acceptable to the medical reader, although he may not entirely acquiesce in the opinion of this excellent philosopher. I shall therefore give a farther quotation from the letter before referred to. "The gentry of England are remarkably
 "afraid of moisture, and of air. But seamen,
 "who live in perpetually moist air, are always
 "healthy if they have good provisions. The
 "inhabitants of Bermudas, St. Helen, and other
 "islands far from continents, surrounded with
 "rocks, against which the waves continually
 "dashing fill the air with spray and vapour, and
 "where no wind can arise that does not pass
 "over much sea, and of course bring much
 "moisture, are remarkably healthy. And I
 "have long thought, mere moist air has no ill
 "effect on the constitution; though air impreg-
 "nated with vapours from putrid marshes is
 "found pernicious, not from its moisture, but
 "putridity. It seems strange that a man, whose
 "body is composed in great part of moist fluids,
 "whose blood and juices are so watery, who can
 "swallow quantities of water and small beer
 "daily

“ daily, without inconvenience, should fancy that
 “ a little more or less moisture in the air should
 “ be of such importance. But we abound in
 “ absurdity and inconsistency.”

IN the former paper, I gave a striking example of the great advantages of diligence and sobriety, in *the length of days* which the people of Monton enjoy. Such an instance, though a single one, affords the most animating lesson of morality; and I can enforce it by farther proofs.

THE Rev. Mr. Harrop has favoured me with an account of the people who attend divine service in the chapel at Hale, near Altringham, which he has lately taken, with a retrospect of the births and deaths amongst them during the last seven years. The society is composed of 140 males, 136 females, 92 married persons, 8 widowers, 12 widows, 105 under fifteen years of age, and 41 above fifty. The deaths during seven years have been 28, and the births 68. It appears from this enumeration, that only one in 69 of the people, who are most of them farmers, dies annually. Hale is a low situation, and the soil is clayey.

THE congregation belonging to the chapel at Horwich consists of 305 individuals, viz. 149 males, and 156 females, 94 married persons, and 9 widowers, 8 widows, 127 under fifteen years of age, and 50 above fifty. The births for the last
 seven

seven years have amounted to 101, and the deaths to 32. Hence the yearly proportion of deaths to the inhabitants is as 1 to 66. Horwich is between Bolton and Chorley, the country is mountainous, and the people are composed almost equally of farmers and manufacturers. I am obliged to the Rev. Mr. Evans for this account.

THE Rev. Mr. Smalley of Darwen, three miles from Blackburn in Lancashire, has transmitted to me the following survey of his congregation. It consists of 1850 individuals; 900 males; 950 females; 640 married persons; 30 widowers; 48 widows; 737 persons under the age of fifteen, and 218 above fifty. During the last seven years the deaths have amounted to 233; and the births to 508. The annual proportion of deaths therefore is 1 in 56; and the births are to the number of inhabitants nearly as 1 to 25.5. Darwen is a country district, bleak and elevated in its situation, surrounded by moors, and ill cultivated. The inhabitants are chiefly employed in the cotton manufactory.

A CLERGYMAN in the peak of Derbyshire has, at my desire, undertaken an enumeration of the people of Edale, a fertile valley in that part of the county, inhabited by a sober and industrious race of farmers. But I have not yet received a particular account of the survey; and have only
been

been informed, that 1 in 59 of the inhabitants dies annually, on an average of ten years.

THE principles and manners of the Quakers, though often made the subjects of illiberal censure and ridicule, may probably afford them advantages, with respect to the duration of life, over other bodies of men. The diligence, cleanliness, temperance and composure of mind, by which the members of this society are in general distinguished, may reasonably be supposed to contribute to health and longevity: And as there are no persons among them in abject poverty, and few immoderately rich, this more equal distribution of property must lessen the sources of disease, and furnish every individual under it with the necessary means of relief. These considerations excited my curiosity to know the proportion of deaths amongst the Quakers in Manchester; and I have been gratified by Mr. Routh, in the most obliging manner, with the following information. The society consists of 81 males; and 84 females; 54 married persons; 9 widowers; 7 widows; and 48 persons under fifteen years of age. The births during the last seven years have amounted to 34; and the burials to 47. About 1 therefore in 24.6 of the Quakers in Manchester dies annually; whereas the proportion of deaths amongst the inhabitants of the town at large is

is as 1 to 28. If no allowance be made for the temporary and accidental irregularities which may occur in a single and small body of men, when the average of a few years has only been taken, a conclusion directly contrary to what I have presupposed, will be drawn from this fact. And perhaps it will be urged, that the want of vivacity in the people of this sect, and the sedentary lives of their females, are causes which shorten the period of their existence, and counterbalance the advantages from cleanliness and sobriety, which they enjoy. But the reader will entertain a different opinion concerning this point, when he is informed, that the Quakers here have had few or no accessions to their number, by supplies from other places, during the last seven years. This must considerably increase their proportional mortality, for reasons which have been before assigned; and is the true cause, why the deaths amongst them so much exceed the births. Were it not for new settlers in the prime of life, who annually pour into Manchester, it is probable that more than 1 in 25 of its inhabitants would die annually. So baleful is the influence of large towns on the duration of life; and so justly are they stiled, by a writer of the most distinguished abilities, the *graves* of mankind (*g*)!

THE Rev. Mr. Barnes, whom I cannot mention without expressions of esteem and friendship, made a survey in September, 1773, of the people belonging to the new chapel at Cockey Moor, near Bolton, the particulars of which are as follow :

Houses	150.
Families	154.
Males	320.
Females	391.
Married persons	248.
Widowers	10.
Widows	27.
Under fifteen	252.
Above fifty	99.
Births in five years	125.
Deaths in seven years	114.
Total number of people	711.

THE married persons in this society are therefore to the single as 1 to 1.867; the widows are nearly treble the number of widowers; a seventh part of the people have attained the age of fifty, and those under fifteen exceed one third of the whole congregation. The average number of births is 25 every year, and of deaths $16\frac{2}{7}$; so that the former are to the latter, in the proportion of somewhat more than 5 to 3; and 1 person

son in about 44 dies annually. It should be remarked, that the number of deaths in this period was considerably increased by the uncommon fatality of the small-pox in the year 1770. Cockey Moor is surrounded by a cold, wet, and barren country; the inhabitants are farmers and manufacturers.

THE congregation belonging to the chapel at Chowbent consists of 1160 persons, viz. 554 males; 606 females; 173 males, and 150 females under 10 years of age; 83 males, and 91 females above fifty; 6 males, and 4 females above eighty; 199 married couples; 26 widowers; and 43 widows. The baptisms during six years (wanting six weeks) have amounted to 293; and the deaths to 169. About 1 therefore in 41.2 of this society dies annually. This survey was made in November, 1773, by the Rev. Mr. Mercer. The people of Chowbent are employed chiefly in the manufactories of cotton, linen, and iron.

AT Ackworth, near Ferry-bridge in the county of York, the christenings and burials for ten years, viz. from March 25th 1757, to March 25th 1767, have been as follow:

CHRISTENINGS.		BURIALS.	
Males	104.	Males.	79.
Females	108.	Females	77.
Total	212.	Total	156.
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Of this number have died,

	Males.	Females.	Total.
Under 2 years old	18	13	31
Between 2 and 5	9	7	16
5 and 10	4	1	5
10 and 20	2	2	4
20 and 30	7	5	12
30 and 40	3	8	11
40 and 50	2	4	6
50 and 60	11	3	14
60 and 70	13	13	26
70 and 80	7	14	21
80 and 90	3	6	9
90 and 100	0	1	1
Of all ages in ten years	79	77	156

DISEASES.	Males.	Females.	Total.
Child-bed	0	2	2
Chincough	0	2	2
Consumption	23	15	38
Diabetes	1	0	1
Fever	12	11	23
Infants	7	6	13
Measles	0	2	2
Old Age	11	19	30
Small Pox	7	6	13
Dysentery	1	1	2
Dropfy	0	3	3
Apoplexy	2	1	3

IN

POPULATION, &c. 35

In this parish there are,

184 Houses, eleven of which are uninhabited.

728 Persons, of the following ages, viz.

	Males.	Females.	Total.
Under 2 Years old	31	25	56
Between 2 and 5	32	36	68
5 and 10	34	38	72
10 and 20	50	51	101
20 and 30	44	63	107
30 and 40	61	62	123
40 and 50	31	38	69
50 and 60	28	32	60
60 and 70	20	28	48
70 and 80	7	10	17
80 and 90	2	4	6
90 and 100	0	1	1

Of all ages—Total 340 388

THIS account of Ackworth was lately transmitted to my friend Mr. White, by the Rev. Dr. Lee, Rector of the parish. It appears that 1 in 46 .6 of the inhabitants dies yearly; and that the proportion of persons to each tenanted house is $4\frac{1}{2}$. Amongst the males under 2 years of age, the number of deaths exceeds, by a third, those amongst the females; and 43 women and only 29 men have attained the age

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of fixty and upwards. These facts (and I could adduce many similar ones) confirm a curious remark lately advanced by Dr. Price, that the life of males is more frail than that of females.

I SHALL conclude this Paper with a Table deduced from the preceding observations.

FEB. 1st, 1774.

A TABLE

A TABLE shewing the PROPORTION of INHABITANTS *dying annually* in several different Places.

MANCHESTER.	LEVERPOOL.	CHOWBENT.	EASTHAM.	COCKEY.	ROYTON.
1. in 28.	1. in 27 .7.	1. in 41.	1. in 35.	1. in 44.	1. in 52.
DARWEN.	EDALE.	ACKWORTH.	HORWICH.	HALE.	MONTON.
1. in 56.	1. in 59.	1. in 47.	1. in 66.	1. in 69.	1. in 68.

OBSERVATIONS

ON THE

STATE of POPULATION in MANCHESTER, and other
ADJACENT PLACES, concluded.

A VERY accurate survey was completed last year of the towns of Manchester and Salford, with their respective townships. This spring an enumeration, equally exact and comprehensive, has been made of the whole parish of Manchester; which contains thirty-one townships (exclusive of the two above-mentioned) in the compass of less than sixty square miles. The reader is here presented with the particulars of this enumeration.

Tenanted houses	2371.
Families	2525.
Inhabitants	13,786.
Males	6942.
Females	6844.
Married	4319.
Widowers	232.
Widows	315.
Under fifteen	5545.
Above fifty	1762.
Above sixty	470.

Above

POPULATION, &c. 39

Above seventy	261.
Above eighty	87.
Male lodgers	68.
Female lodgers	51.
Empty houses	41.

THE number of persons to a house, in the parish of Manchester, is therefore nearly $5\frac{4}{5}$; of individuals to a family about $5\frac{1}{2}$; and $\frac{1}{3}$ th of the inhabitants have attained the age of fifty. It is unnecessary to point out the difference in the proportions between the *town* and adjacent *country*, as it will appear sufficiently obvious, by comparing this account with that of Manchester. The whole number of inhabitants in the town, township, and parish of Manchester, amounts to 42937.

At the close of 1772, an account was collected from every country chapel, both Episcopal and Dissenting, in the parish, of the baptisms and burials of that year. The former were found to amount to 401; the latter to 246; and there is a presumption, that this is nearly the annual proportion of deaths in the parish of Manchester, exclusive of the town and township. For the number of burials in the whole parish was, in the same year, exactly 1200; and it has been shewn, that the deaths in the town of Manchester are, one year with another,

958. This sum being subtracted from 1200, leaves a remainder (242) for the country, very nearly equal to 246. And if 13786, the number of people in the parish, be divided by 246, it will appear that only one in 56 of the inhabitants dies annually; whilst the yearly mortality in Manchester is as 1 to 28. Such a striking disparity in the healthiness of a large town, and of the country which surrounds it, granting it to be less than has been supposed, will scarcely be credited by those, who have paid no attention to inquiries of this nature. And it must afford matter of astonishment even to the physician and philosopher, when he reflects, that the inhabitants of both live in the same climate, carry on the same manufactures, and are chiefly supplied with provisions from the same market. But his surprise will give place to concern and regret, when he observes the havoc produced in every large town by luxury, irregularity, and intemperance (a); the numbers that fall annual

(a) THERE are at this time, in Manchester, no less than 193 licensed houses for retailing spirituous and other liquors; and 64 in the other townships of the parish. At Birmingham, the number of public houses is still greater than at Manchester. A very ingenious friend of mine in that place has computed, that the quantity of malt consumed there in the public houses, requires for its growth, a compass of land which would be sufficient for the support of 20,000 men.

victims

victims to the contagious distempers, which never cease to prevail; and the pernicious influence of confinement, uncleanness, and foul air on the duration of life (*b*).

Ye who amid this feverish world would wear
A body free of pain, of cares a mind;
Fly the rank city, shun its turbid air;
Breathe not the chaos of eternal smoke
And volatile corruption, from the dead,
The dying, sickening, and the living world
Exhaled, to fully heaven's transparent dome
With dim mortality.

Armstrong on Health, Book I.

GREAT TOWNS are in a peculiar degree fatal to children. Half of all that are born in London die under two, and in Manchester under five years of age; whereas at Royton, a country township not far distant from Manchester, the number of children dying under the age of three years, is to the number of children born only as 1 to 7: and at Eastham, a parish in Cheshire inhabited by farmers, the proportion is considerably less.

It is a common, but injurious practice, in manufacturing countries, to confine children, before

(*b*) THE Rev. Dr. Tucker, Dean of Gloucester, informs me, "That were it not for the daily arrival of recruits from the country, his parish (St. Stephens, in Bristol) and indeed Bristol in general, would be left in a century without an inhabitant; unless the people should betake themselves to better courses."

they

they have attained a sufficient degree of strength, to sedentary employments, in places where they breathe a putrid air, and are debarred the free use of their limbs. The effect of this confinement, says an able writer, is either to cut them off early in life, or to render their constitutions feeble and sickly. But the love of money stifles the feelings of humanity, and even makes men blind to the very interest they so anxiously pursue. The same principle of sound policy, which induces them to spare their horses and cattle, till they arrive at a due size and vigour, should determine them to grant a proportionable respite to their children(c). And this observation may, perhaps, be extended to the untimely culture of the mind. For too early an application to study impairs the faculties, injures the constitution, and hurts the temper by frequent contradiction. Almost as soon as a boy has acquired the powers of speech, he is shut up many hours every day in a noisome school, secluded from the benefit of exercise and the refreshment of the open air, and tied down to the severe drudgery of learning what serves only, at such a period of life, to overcharge his memory, and to destroy his native cheerfulness of disposition. Thus the age of gaiety (to use the

(c) See Dr. Gregory's Comparative View of the State and Faculties of Man, &c.

words of the elegant writer before referred to) is spent in the midst of tears, punishments, and slavery; and this to answer no other end but to make a child a man, some years before nature intended he should be one.

THE Rev. Mr. Harrison of Chapel in le Frith has made a survey, at my request, of the inhabitants of Chinley, Brownside, and Bugsworth; three hamlets contiguous to each other, in the parish of Glossop, and peak of Derbyshire. They are four statute miles in length, and three in breadth; and contain 301 males; 310 females; 200 married persons; 15 widowers; 18 widows; 234 persons under fifteen years of age; 121 above fifty; and 9 who have attained the age of eighty. This enumeration was finished in September, 1773.

I HAVE been furnished by the Rev. Mr. Afsheton, Rector of Middleton near Manchester, with an account of the births, deaths, and marriages in his parish, during ten corresponding years of the last, and of the present century. From 1663 to 1672 inclusive, the deaths were, males 180, females 187; the births, males 200, females 188; the marriages 121.

THE births therefore, during ten years, only exceeded the deaths in number 21; and the average number of births to each marriage, was as $3\frac{1}{2}$ to 1.

FROM

FROM 1763 to 1772 inclusive, the deaths were, 499 males, 494 females; the christenings, 802 males, 768 females; the marriages 330. The baptisms therefore, during this period, exceeded the deaths 577, that is, near 58 annually. And if no allowance be made for illegitimate births (which, I believe, in this parish are not numerous, and can no where be supposed equal to one fourth of all that are born) each marriage has produced $4\frac{3}{4}$ children.

It is curious to observe the change both in the proportion of births to the deaths, and also to the marriages, which has taken place at Middleton (and I have received similar accounts of other places) during the course of the last century. The former may be explained by the greater encouragement to matrimony, from the increase of trade: The latter is of more difficult solution; though it is probable that the warmer cloathing, and better fare, which the poor now enjoy, may have contributed to it. Luxury, when carried to such a degree as to enervate the constitution, is unfavourable to population; but plenty of nutritive diet may well be regarded as a source of fruitfulness. The lower class of people, in this country, formerly lived upon the coarsest food. Wheat, an hundred years ago, was almost unknown to them; and so lately has it been cultivated in Lancashire, that it has scarcely yet acquired the name of corn,

corn, which in general is applied only to barley, oats, and rye. Potatoes also are much improved by the present judicious method of growing and propagating them; and they now constitute a most wholesome and nourishing part of our diet.

A PHYSICIAN, of the first rank in his profession, has suggested to me, that tea may be considered as a powerful aphrodisiac; and he imputes the amazing population of China, amongst other causes, to the general use of it. But the Dutch, who drink large quantities of the infusion of this vegetable, are so far from being remarkable for the number of their children, that I have been well informed, two births to a marriage is the common proportion in Holland (*d*).

It must be acknowledged, however, that warm infusions of tea, by relaxing and augmenting the sensibility of the fibres, which in cold climates, and in hard labouring people, are usually too rigid and torpid, may promote the increase of the human species. But the observation is true only under certain limitations; for the same cause, by debilitating the constitution beyond the due

(*d*) IN China, the women are so prolific, and the human species multiplies so fast, that the lands, though ever so much cultivated, are scarcely sufficient to support the inhabitants.
Montesquieu.

medium,

medium, may operate in a contrary manner. Perhaps the general use of pepper, and of other spices, may increase the fertility of mankind.

BUT I shall suspend my conjectures for the present. A variety of causes may counteract the operation of those which I have enumerated; and a considerable number of facts must be adduced to ascertain, whether the proportion of births to marriages be generally increased in countries advanced from poverty to wealth, by the introduction of trade, or the improvement of agriculture. The instance of Middleton, and of one or two places more which first occurred, and suggested the preceding observations, is opposed by others which have lately fallen under my notice. And I cannot close this subject better, than by giving a view of all the facts, which I have collected on both sides of the question.

A TABLE *shewing the PROPORTION of BIRTHS to MARRIAGES in different Places, and at different Periods of Time.*

M I D D L E T O N.

Year.	Marriages.	Christenings.	Births to a Marriage.
From 1663 to 1672,	121	388	$= 3\frac{1}{3}+$.
1763 to 1772,	330	1570	$= 4\frac{3}{4}$.

WARRINGTON.

POPULATION, &c. 47

WARRINGTON.

Year.	Marriages.	Christenings.	Births to a Marriage.
From 1702 to 1722,	131	385	= 2.9.
1752 to 1772,	1549	5034	= 3 $\frac{1}{4}$.

PENTRAETH PARISH, ANGLESEY*.

From 1740 to 1747,	32	100	= 3 $\frac{1}{2}$.
1764 to 1771,	33	149	= 4 $\frac{1}{2}$.

LLANDYFNAN PARISH, ANGLESEY*.

From 1750 to 1757,	28	111	= 3.9+.
1764 to 1771,	32	154	= 4 $\frac{1}{2}$ +
1547 to 1554,	8	36	= 4 $\frac{1}{2}$.
1620 to 1627,	20	44	= 2 $\frac{1}{2}$.

LEVERPOOL.

From 1700 to 1710,	500	2127	= 4 $\frac{1}{4}$.
1762 to 1771,	4812	10010	= 2 $\frac{1}{12}$.

BOWDEN.

From 1653 to 1662,	136	573	= 4 $\frac{1}{2}$ +
1763 to 1772,	369	1300	= 3 $\frac{1}{2}$ +

MANCHESTER.

From 1763 to 1773,	4396	11052	= 2 $\frac{1}{17}$.
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* See Philosophical Transactions, vol. LXIII.

I HAVE lately received from the Rev. Mr. Archdeacon Blackburne, Rector of Richmond in Yorkshire, the following account of his parish. From the year 1764 to 1773 inclusive, 452 males, and 376 females have been baptised; and 299 males, and 341 females have been buried. The marriages during this period have amounted to 200. In Richmond there are about six hundred houses; but the Easter Book enumerates only 450 families; and Mr. Blackburne computes the number of inhabitants to be 2300. "We have no distempers," he says, "that can be called endemial; and when fevers prevail in the neighbourhood, few are affected by them in this town. If any person brings an ague to Richmond, he is generally freed from it in a few days; though the village of Gilling, about a mile and a half distant, which stands low, and has a large pool of stagnant water adjoining to it, is visited with this complaint every spring and autumn.

"THE air of Richmond seems to be peculiarly unfavourable to consumptive disorders. Many strangers come hither, from different parts, in the first stage of the *phthisis pulmonalis*; but, after thirty-five years experience, I may truly say that not one has recovered; although the utmost care and attention has been paid to their respective cases. The natives and con-

stant

“stant residents however are not subject to
 “distempers of the lungs, except when brought
 “on by intemperance. But rheumatic com-
 “plaints are very general, especially amongst
 “the senior part of the inhabitants. In small
 “corporation towns, like Richmond, numbers
 “are taken off by excessive drinking; but the
 “people here who live temperately, seldom die
 “earlier than in their eightieth year.”

HAPPENING to pass through Sutton-Coldfield in Warwickshire, last summer, I was very much struck with the beauty and apparent healthfulness of its situation; and was desirous of knowing the duration of life which the inhabitants of it enjoy. The rector of the parish has, with great politeness and good nature, gratified my curiosity, as far as he is able, by furnishing me with an extract from the church register, and by referring me to the thirty-second volume of the Gentleman's Magazine, for the following authentic account of the place, drawn up, I suppose, by himself.

“SUTTON-COLDFIELD is almost full south of
 “Litchfield, at the distance of about eight
 “measured miles, by which it undoubtedly got
 “its name of Sutton, a contraction of South
 “town: A remarkably bleak and barren com-
 “mon, which lies directly west of it, just out
 “of the bounds of the parish, might probably
 “give it the additional denomination of Cold-
 Vol. II. E “field;

" field; the air being, upon that heath, as keen
 " and cold as in the Highlands of Scotland.
 " The parish is nearly oval in its figure; the
 " longest diameter seven miles, and the breadth
 " four. The face of it is agreeably diversified
 " with gently rising hills, and vallies of tolerably
 " fruitful meadows. It is bounded on the north
 " by Kenston, on the west by Barr, on the south
 " by Curdworth and Aston near Birmingham,
 " and on the east by Middleton: It contains
 " four hamlets, viz. Mancy, Hill, Little Sutton,
 " and Warmley. In the year 1630, there were
 " 298 houses in the parish; in 1698 there were
 " 310; in 1721 the number was increased to
 " 360, which is nearly about the number at
 " present. I compute the inhabitants at 1800.
 " The register begins in the year 1603. The
 " number of christenings for the first 20 years
 " of the register was 645; the burials during the
 " same period were 501. The number of
 " christenings for the last 20 years (ending at
 " Christmas 1761) was 747; the burials
 " 694 (a)."

It is curious to observe the almost exact proportion which the christenings bear to the burials, in two very distant periods of time. But the like proportion seems to hold no longer. For

(a) Gentleman's Magazine for September 1762, p. 401.
 from

from 1762 to 1772 the births have been 655, the deaths 445. The vicinity of Birmingham, and the amazing extension of its manufactures, will account for this change; which seems to have arisen from the recruits annually drawn from Sutton-Coldfield, as well as from every other adjacent place. If the number of inhabitants in this town be rightly computed, the yearly mortality amongst them is only as 1 to 51; and every house, at a medium, contains five persons.

It appears by the observations lately communicated to me by the Rev. Doctor Tucker, that the number of females baptized at the parish church of St. Stephen's in Bristol, from 1754 to 1774, has exceeded the number of males baptized during the same period of time; and that the like remark has been made in some other parishes of the same city. From these facts the learned Dean concludes, that Dr. Derham's calculation, which supposes the proportion of male to female births to be as 14 to 13, may probably be erroneous; and he expresses his earnest wish, that further inquiry may be made into a subject of so much importance. The following table will shew the result of the few observations which I have collected.

A COMPARATIVE VIEW of the NUMBER of MALES
and FEMALES, BAPTIZED in different Places.

Places.		Males.	Females.
Dishley, 11 years	-	149	145
St. Stephen's Parish, Bristol,			
20 years	-	591	607
Taxal, 16 years	-	204	230
Richmond, 10 years	-	452	376
Middleton, 10 years	-	200	188
Bowden, 10 years	-	663	639
Middlewich, 5 years	-	229	242
Chapel in le Frith, 10 years	-	451	332
Warrington, 1 year	-	175	181
Collegiate Church in Man-			
chester, 7 years	-	3215	3024
Royton, 10 years	-	134	120
Chester, 2 years	-	408	415
	Total	6871	6499

FROM this table it appears, that the proportion of males to females baptized is nearly as 12 to 11; but the succeeding ones shew, that the number of females alive considerably exceeds the number of males, in a variety of places; and that the widows are almost double the number of widowers.

A COMPARATIVE

A COMPARATIVE VIEW of the NUMBER of MALES
and FEMALES in different Places.

Places.	Males.	Females.
Manchester -	10548	11933
Salford -	2248	2517
Townships of ditto	947	958
Parish of Manchester	6942	6844
Bolton -	2159	2392
Little Bolton -	361	410
Monton -	196	190
Hale -	140	136
Horwich -	149	156
Darwen -	900	950
Cockey -	320	391
Chowbent -	554	606
Ackworth -	340	388
Eaitham -	451	461
Chinley -	181	168
Brownfide -	40	47
Bugsworth -	80	95
Ashton under line	1406	1453
Parish of ditto	2584	2513
Tattenhall Parish	382	399
Waverton Parish	310	332
Total	31238	33339
E 3	A COMPARATIVE	

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A COMPARATIVE VIEW of the NUMBER of WIDOWERS and WIDOWS, in different Places.

Places.	Widowers.	Widows.
Manchester - -	432	1064
Salford - -	89	149
Township of ditto -	21	42
Parish of Manchester -	232	315
Monton - -	14	13
Hale - -	8	12
Horwich - -	9	8
Darwen - -	30	48
Cockey - -	10	27
Chowbent - -	26	43
Chirley, Brownside, and Bugsworth - -	15	18
Ashton under line -	50	81
Parish of ditto - -	67	95
Total	1003	1915

LET no arguments in favour of polygamy be drawn from these tables! The practice is brutal; destructive to friendship and moral sentiment; inconsistent with one great end of marriage, the education of children; and subversive of the natural rights of more than half of the species.

- - - Higher

----- Higher of the genial bed by far,
And with mysterious reverence I deem.

MILTON.

Nor is this tyranny of man over the weaker, but more amiable sex, favourable to population. For notwithstanding the number of females in the world may considerably exceed the number of males, yet there are more men capable of propagating their species, than women capable of bearing children. This painful office gradually becomes more dangerous, and less frequent, as the rigidness of the fibres increases; and ceases entirely at the age of fifty. The fatality of it is thus wisely obviated, and the comforts of declining life are not interrupted by the arduous toil of nursing. An institution therefore which confines in servile bondage to one usurper, many females in the prime of youth, must leave numbers destitute of the means which nature has pointed out, for perpetuating and increasing the race of mankind. And it is a fact well known, that Armenia, in which a plurality of wives is not allowed, abounds more with inhabitants than any other province of the Turkish Empire.

JUNE 5, 1774.

P. S. SINCE the preceding paper was written, the Rev. Mr. Craddock has favoured me with a survey of the town and parish of Ashton under line, distant about eight miles from Manchester; and, also, with an account of the burials and christenings, during the last eleven years. The inhabitants of this place consist of manufacturers and farmers.

An ENUMERATION of the INHABITANTS of the Town and Parish of ASHTON UNDER LINE, made in 1775.

	Town.	Parish.
Inhabitants	2859	5097
Houses	553	941
Families	599	971
Males	1406	2584
Females	1453	2513
Married	982	1679
Widowers	50	67
Widows	81	95
Under five years of age	509	896
From five to ten	396	764
ten to twenty	541	1011
twenty to fifty	1044	1882
fifty to seventy	307	471
seventy to ninety	62	73

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*An Account of the BURIALS and CHRISTENINGS
in the Parish of ASHTON UNDER LINE, during
the last eleven Years.*

BURIALS.

		Males	Females	Huf-		Widow-	Wi-
		unmarried.	Do.	bands.	Wives.	ers.	dows.
1765	159	60	51	10	17	13	8
1766	187	42	54	34	24	7	26
1767	159	44	45	23	21	9	17
1768	197	69	60	18	25	1	24
1769	206	79	75	16	12	9	15
1770	167	54	46	29	7	20	11
1771	178	67	43	26	23	8	11
1772	250	97	71	16	35	10	21
1773	157	48	50	18	23	6	12
1774	152	38	46	21	24	10	13
1775	241	92	96	15	20	8	10
	2053	690	637	226	231	101	168

CHRISTENINGS.

	Males.	Females.
1765	121	114
1766	97	123
1767	116	111
1768	122	108
1769	157	137
1770		

	Males.	Females.
1770	139	142
1771	133	143
1772	168	141
1773	174	131
1774	137	146
1775	168	164
	1532	1460

THE Reverend Dr. Peploe, Chancellor of the diocese of Chester, has honoured me with the following account of the parishes of Waverton and Tattenhall, both in the neighbourhood of Chester. The inhabitants are farmers and labourers.

An ENUMERATION of the INHABITANTS of TATTENHALL, made in August 1774, by the Reverend BRICE STORR, Curate.

Inhabited houses	-	-	-	148.
Uninhabited ditto	-	-	-	2.
Heads of families	-	-	-	176.
Aged above fifteen years	-	-	-	462.
Men and boys	-	-	-	382.
Women and girls	-	-	-	399.

CHRISTENINGS.

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	CHRISTENINGS.	BURIALS.
1764	28	8
1765	21	9
1766	19	12
1767	29	11
1768	28	16
1769	24	15
1770	37	15
1771	30	9
1772	26	15
1773	38	20
	280	130

*An ENUMERATION of the INHABITANTS of W-
VERTON, made in August 1774, by the Reverend
Mr. BISSELL, Minister of the Parish.*

Inhabited houses	109
Uninhabited ditto	2
Heads of families	116
Aged above fourteen years	406
Men and boys	310
Women and girls	332

	CHRISTENINGS.	BURIALS.
1764	19	10
1765	26	2
1766	17	7
1767	18	10

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	CHRISTENINGS.	BURIALS.
1768	22	10
1769	17	7
1770	20	8
1771	23	9
1772	18	12
1773	13	9
	193	84

EXTRACT of a LETTER from the Reverend Mr.
BISSELL, of WAVERTON near CHESTER.

At the beginning of the year 1775, the parish
of Waverton near Chester, contained

Inhabited Houses. Families. Males. Females. Inhabitants.
111. 116. 310. 332. 642.

From Jan. 1st to Dec. 31st 1775 inclusive there
were

CHRISTENINGS.		BURIALS.	
Males	14	Males	6
Females	8	Females	6
	22		12

BURIALS IN 1775.

Days.	Sex.	Age.	Diseases.
Jan. 20,	A Woman	77 Years	Asthma.
Jan. 31,	A Girl	9 Weeks	Convulsions.
Feb. 9,	A Woman	67 Years	Dropsy.
March 6,	A Woman	87 Years	Decay of Age, and an Ulcer in the Axilla.
			April

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Days.	Sex.	Age.	Diseases.
April 3,	A Woman	65 Years	Putrid Fever.
April 9,	A Man	45 Years	Uncertain.
April 11,	A Man	63 Years	Dropsy.
June 18,	A Woman	40 Years	Consumption.
July 6,	A Boy	14 Months	Small Pox with hot Regimen.
Aug. 14,	A Boy	4 Years	Small Pox and Worms.
Nov. 11,	A Man	65 Years	Gout and Dropsy in consequence of hard drinking.
Nov. 26,	A Man	68 Years	Dropsy.

IN the valuable work which I have so often quoted, Dr. Price has advanced many arguments to shew the declining state of population in this kingdom. The growth of large towns, the prevalence of vice and luxury, the discouragements to marriage, the destruction of cottages; and various other causes, have the most unfavourable influence on the increase of mankind. But it is to be hoped, that these evils do not generally prevail, and that even some good may arise from them to check their baneful effects. Certain it is, that in this part of England the inhabitants multiply with great rapidity: And though the increase may be chiefly owing to recruits drawn from other counties, yet the flourishing state of our manufactures cannot fail to promote population, by affording plentiful means

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means of subsistence to the poor. The Bishop of Chester (Dr. Markham) informs me, that in various parish registers which he has consulted, the births have progressively become more numerous from generation to generation. At Broxley in Kent, where his Lordship was Vicar, he divided the times, from the commencement of the reign of Queen Elizabeth, into periods of twenty-one years; and found, that the number of births in the first period was 310, and in the last 525. The increase was gradual through the whole time.

A P P E N D I X

TO THE FOREGOING OBSERVATIONS.

THE following view of the progress of population, in Manchester, from 1758 to 1777, inclusive, divided into periods of five years, was annexed to the yearly bill of mortality, A. D. 1778.

	Average Number of Deaths including Dissenters.	Number of Inhabitants estimated by supposing the Deaths to be 1 in 28,4.	Progressive Increase, five
From 1758 to 1762	751	21,328	—.
1763 to 1767	869	24,680	3,352.
1768 to 1772	958	27,246	2,566.
1773 to 1777	1010	28,684	1,438.
DURING			

DURING the last-mentioned period, viz. from 1773 to 1777, 719 houses were built in Manchester and Salford. At the close of 1777, 151 of these were uninhabited.

By a survey, completed in December, 1783, of the townships of Manchester and Salford, the number of houses was found be 6195; which number multiplied, as formerly, by $6\frac{1}{3}$ would make the inhabitants to have then amounted to 39,235. But it is probable, that the proportion of $6\frac{1}{3}$ to a house, is less than the truth, at a period when the restoration of peace produced a sudden influx of people. And the increase of population has been since so great, that the enumeration at Christmas, 1788, stood as follows:

	Houses.	Families.	Persons.
Township of Manchester,	5916	8570	42821.
Township of Salford, about,	1260	—	—

In Salford, the houses being generally smaller than in Manchester, Mr. Wharmby, the surveyor to whom I am indebted for this account, is of opinion, that six persons may be reckoned to each dwelling. The whole number of inhabitants, therefore, in the two townships, exceeds 50,000.

THE rapid growth of Manchester admits of an easy and satisfactory explanation, from the astonishing and sudden increase of the cotton manufactory, of which it may be deemed the
great

great *emporium*. Not more than twenty years since, it is said, the whole annual return of this trade in Great Britain amounted only to £200,000: Whereas, at this time, the gross produce of raw materials and labour is estimated at more than seven millions sterling. And it is calculated, that one hundred and fifty-nine thousand men, ninety thousand women, and a hundred and one thousand children are employed in the different stages of the manufacture (*b*).

I HAVE mentioned an observation, communicated by Dr. Tucker, that the number of females baptized at the parish church of St. Stephen's, in Bristol, from 1754 to 1774, exceeded the number of males baptized during the same period of time; and that, from hence, the learned Dean suspected Dr. Derham's calculation to be erroneous, which makes the proportion of male to female births to be as 14 to 13. From the facts which I collected, the proportion appeared to be nearly as 12 to 11: But Dr. Price, from a much larger induction, has now fully shewn, that it is as 20 to 19 (*c*).

(*b*) See a Pamphlet entitled, an Important Crisis in the Callico and Muslin Manufactory. 1788.

(*c*) Reverfionary Payments, vol. II. fourth edit. p. 16. Appendix.

It has been evinced, by a great variety of registers, that the mortality of males exceeds that of females, in almost every period of life; but especially in the earliest stages of it, nearly one half more of the former than of the latter being still born; and, that the excess prevails most in great towns, and under other circumstances, which are unfavourable to health. Dr. Clarke, physician to the Lying-in Hospital at Dublin, has elucidated this intricate subject, in a paper read before the Royal Society, March 30, 1786. Male foetuses, being larger, require more nutrition than female foetuses, during gestation; and are more liable to injury at the time of birth. Debility, therefore, in either parent, from whatever source it may arise, must affect that sex the most, both before and after delivery, which not only requires the largest and strongest *stamina*, but is put to the severest trials, both in delivery and in after-life.

Among the causes which increase the proportion of human mortality, in large towns, must be reckoned the more ready communication and greater malignity of contagious distempers. In June 1783, I received the following information from Richard Townley, Esq. of Belfield, near Rochdale, a very respectable and intelligent justice of the peace. I shall de-

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liver it in his own words. "It is unnecessary
 "to make any apology for sending you an
 "account of the ravages, which that dreadful
 "disorder, the small-pox, made in the town
 "of Rochdale, within the space of a few months,
 "last winter, compared with the state of those
 "children, who happened to be infected with
 "the same loathsome malady, in two villages
 "nearly adjoining to my house, during the
 "same period of time. The account is very
 "accurate, being taken by the constables,
 "who went from house to house; and it
 "is found to agree with the parish register.
 "The latter table is delivered from my own
 "personal knowledge."

	No. Ill.	Dead.	Recovered.
Part of Huddersfield town- ship, within Rochdale,	141	40	101
Spotland township, -	108	30	78
Castleton ditto, -	160	32	128
	409	102	307
In the village of Belfield,	20	0	20
Ditto Newbold,	19	1	18
	39	1	38

DR. SMITH, in the Wealth of Nations, ob-
 serves, that it is not uncommon, in the High-
 lands

lands of Scotland, for a woman to have only two surviving children of twenty whom she has brought into the world. But a life of rural labour, in a tolerably genial climate, without extreme penury, is favourable to population. At Dunmow in Essex, we are informed, the parish contains 262 poor families, who have 460 children. There are also 116 families of the ranks above them, who have only 120 children, which is little more than half the former proportion. The *ratio* of deaths, during the last five years, has been, of the poor children 1 in $45\frac{1}{2}$; of those in a higher station 1 in $37\frac{1}{2}$ (*d*).

(*d*) See Howlett on the Increase of the Poor. 1788. p. 102.

ESSAY II.

ON THE

SMALL-POX AND MEASLES(a).

TABLES *shewing the NUMBER of DEATHS occasioned by the SMALL-POX, in the several Periods of Life, and different Seasons of the Year, together with its COMPARATIVE FATALITY to MALES and FEMALES; extracted from the Register of the Collegiate or Parish Church in MANCHESTER, and from other BILLS of MORTALITY.*

ACCURATE and comprehensive bills of mortality furnish a variety of the most curious and important observations; and it is to be lamented that they are not universally adopted. The general uses to which they may be applied, have been fully pointed out; and a plan for the establishment of them has been proposed to the consideration and correction of the public (b). It is one part of this plan, that the register of burials shall not only

(a) Inserted in the London Medical Observations and Inquiries, vol. V. p. 270. (b) See vol. I. p. 428.

contain

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contain a list of the diseases of which all die, but also express particularly the numbers dying of each disease, *in the several divisions of life, and different seasons of the year.* The following tables will illustrate the advantages, which may be derived from this improvement.

An Account of DEATHS by the SMALL-POX, during SIX YEARS, viz. from 1768 to 1774; collected from the Register of the Collegiate Church at MANCHESTER.

T A B L E I.

Ages.	Males.	Fe- males.	Annual Deaths by the Small-Pox.		Deaths by all Diseases.
From Birth to 3 Months.	2.	2.	A. D.		
From 3 Months to 6 Months	9.	8.	1769.	74.	549.
----- to			1770.	41.	689.
1 Year	51.	68.	1771.	182.	678.
2.	103.	113.	1772.	66.	608.
3.	55.	55.	1773.	139.	648.
4.	33.	26.	1774.	87.	635.
5.	18.	16.			
10.	17.	12.			
20.	1.	0.			
30.	0.	0.			
Total	289.	300.	589.*		3807.

I. THIS

* THIS account of the annual deaths by the small-pox from 1768 to 1774, differs from the printed bills of mortality;

I. THIS table is formed from a very accurate register, and affords a striking view of the disparity in the ravages of the small-pox, at different periods of life. The proportion of deaths under the age of three months is extremely small; and I think we may conclude, that this distemper rarely occurs in the early part of infancy. For children in that tender season are neither in the way of infection, nor does experience shew that they are much disposed to receive it. Dr. Monro informs us, that of twelve infants, inoculated within a fortnight, after their birth, not one had the variolous eruption(c). In the second stage of infancy, the fatality of the small-pox is somewhat increased; but the advancement proceeds afterwards with amazing rapidity. For, during the eighteen months which next succeed, the number of deaths amounts to 335; which is more than one half of all that occur through the remainder of life. At this period, therefore, we may presume that the body is peculiarly liable to the disease; and the violence and malignity of it are aggravated by the breed-

talities; which make the number amount to 586, and not to 589. But it has been extracted from the church register with a degree of care and attention not usually bestowed upon the printed bills; and the accuracy of it may, I believe, be relied upon.

(c) Monro on Inoculation, p. 25.

ing

ing of teeth, and by the general irritability of the nervous system. But the first dentition is usually completed before the end of the third year; at which time the small-pox appears, by the table, to become considerably less mortal. And its declension is not less rapid than its progress, as the constitution improves in vigour, and as those decrease in number who are liable to its attack.

In the year 1773, the small-pox raged with great violence in the town of Warrington; and I have procured from my friend Mr. John Aikin, an exact account of the number and ages of those who died of it. This account coincides with the foregoing table, and confirms many of the conclusions which are deducible from it.

DEATHS BY THE SMALL-POX
AT WARRINGTON IN 1773.

T A B L E II.

Ages.				Numbers.
Under	1	Month		0.
From	1	to 3	Months	4.
	3	-- 6	---	6.
	6	-- 12	---	39.
From	1	to 2	Years	84.
	2	-- 3	---	33.
	3	-- 4	---	18.
	4	-- 5	---	15.
	F 4			From

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Ages.				Numbers.
From	5	to	6	Years
	5		6	4.
	6	--	7	2.
	7	--	8	2.
	8	--	9	4.
None above.				Total 211.

II. THE small-pox, by table I. appears to have been more fatal to female than to male children, and the difference is considerable under the age of two years. At Warrington, two thirds of all who died of this disease in 1773 were females. These facts are somewhat extraordinary; as it has been fully evinced by a variety of observations, that the life of males is much more frail than that of females(*d*), and particularly in the period of infancy(*e*). They also contradict the following remark of Baron Van Swieten: *Cum autem muliebre Corpus mollius et laxius sit corpore virili, hinc, cæteris paribus, & in his mitior esse solet hic morbus.*

Comment. vol. V. p. 16.

III. THE comparative mortality of the small-pox at Manchester, Warrington, and Chowbent, in the different seasons of the year, may be estimated by the following table.

(*d*) SEE Dr. Price's Treatise on Reversionary Payments, *passim*; also the preceding Observations on the State of Population in Manchester, and other adjacent Places.

(*e*) Ibid.

TABLE

T A B L E III.

Months,	MANCHESTER, From 1768 to 1774.	WARRINGTON, 1773.	CHOWBENT, From 1767 to 1773.	Total.
January, } February, } March, }	160.	21.	17.	198.
April, } May, } June, }	137.	135.	7.	279.
July, } August, } September, }	147.	51.	2.	200.
October, } November, } December, }	145.	4.	1.	150.

SYDENHAM has observed, that the small-pox, when it is mild and regular, usually commences about the vernal equinox, in those years in which it is epidemic; but that it begins earlier when it is of an irregular and more dangerous kind. No one can doubt, that variations in the moisture, dryness, temperature, and other qualities of the air, must influence a disease, which is always of an inflammatory, and often, in its last stages, of a putrid nature. But the progress of it cannot be regulated by the seasons, because it is derived from contagion; the communication of which frequently depends upon accident, is confined to no period of time, and is varied by its degrees of

of malignity. During the late visitation of the small-pox at Warrington, the state of the atmosphere went through all possible changes, but with no perceptible difference in the circumstances of the disease (*f*).

IV. DURING the period of time included in the first table, the small-pox was twice epidemical in Manchester; and the deaths by it amount nearly to one sixth and a half of those occasioned by all other diseases. But it may be proper to remark, that the poor of this town are chiefly buried at the collegiate church; and this distemper proves much more fatal to them than to persons of better rank, from their want of cleanliness, and their prejudice in favour of a hot regimen. In London, from 1762 to 1772, the average proportion of deaths by the small-pox is 109 in 1000, or about a ninth of the whole. And at Ackworth, a country parish near Ferrybridge in Yorkshire, the proportion during twenty years, viz. from 1747 to 1767, is as 1 to 19; two hundred and sixty-three persons having been buried, fourteen of whom died of the small-pox. Were such accounts to be collected from different places, and at different periods of time, it is probable, that farther variations in the fata-

(*f*) See Philosophical Transactions, vol. LXIV. p. 439.

lity of this disease would be discovered (g). But from its least destructive ravages we may derive arguments of sufficient force, in favour of inoculation. And the two first tables may perhaps furnish some useful information, concerning the particular season of life in which this practice will be most expedient, and attended with the greatest prospect of success.

(g) BARON Van Swieten has given the following remarkable account of the proportion of deaths by the small-pox, in several schools and hospitals at Vienna. *Ratione subducta, patet, quod numerus omnium, qui in his locis variolis decubuerunt, sit 355, et quod ex hoc numero septem mortui fuerint. Adeoque proportio mortuorum ad numerum sanatorum est ut 1. ad 50. circiter. Si autem de hoc mortuorum numero detraberentur tres aegri, quorum mors solis variolis adscribi nequit, tunc certe proportio mortuorum ad sanatos foret ut 1. ad 89. circiter.*

Van Swieten. Comment. vol. V. p. 145.

MR. BEW, an ingenious apothecary in Manchester, informs me, that he attended seventy patients the last year (1774) under the natural small-pox, of which number only two died. They were chiefly children above the age of two years; and the cool regimen was strictly pursued in the treatment of them.

In the secondary fever of the small-pox, I have known a warm bath, prepared of a decoction of chamomile leaves and flowers, with a proper quantity of butter-milk added to it, produce the happiest effects. It cleanses the skin from the putrid *sordes* which covers it; softens the pustules; opens the pores; promotes perspiration; and proves highly refreshing to the patient.

V. IF we regard only the state of the body, the fittest period for the ingraftment of the small-pox seems to be between the age of two and four in healthy children, and of three and six in those who are tender and delicate. The powers of nature are then sufficiently vigorous; perspiration is free and copious; the irritability of the body is diminished; the viscera are sound and unobstructed; the mind, though active and lively, is not disturbed by violent emotions; the teguments are properly extenuated; and the fibres are neither too tense nor too lax for the variolous eruption. To these important advantages may be added, that at this age the child is both a proper subject for preparatory medicines, and for such as may be deemed necessary during the course of the distemper. But other considerations, besides the state of the constitution, demand our attention. The risque of receiving the natural small-pox by infection appears to be very great during the second year of life; and the fatality of the disease at this period is highly alarming. To avert such impending danger, the inoculation of healthy and vigorous children, at the *age of two or three months*, seems to be adviseable, especially in large towns. An earlier period might complicate the small-pox with the jaundice, thrush, gripes, diarrhoea, and other disorders incident to the first stage of infancy; and a later season may
superadd

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superadd the fever, convulsions, and other symptoms of dentition. But I have enlarged upon this subject in the former volume, to which I refer the reader (*b*).

My friend Dr. Haygarth, to whom I communicated the preceding *Tables of the comparative mortality of the small-pox, &c.* has adopted the plan, and pursued the same inquiry at Chester. His statement will shew how exactly our observations agree.

C H E S T E R, 1774.

Total of deaths by the small-pox, - 202.

Deaths by the small-pox under 1 year old, 51.

(*b*) See vol. I. p. 230.

In a letter from the Hon. and Rev. Mr. Stuart, rector of Luton in Bedfordshire, to Sir William Fordyce, dated March 1, 1788, it is said, that of 1215 patients inoculated in that parish, only five died, and those at the following ages.

Persons.	Ages.
1	9 weeks old, thrush.
1	7 ditto.
1	12 ditto.
1	16 ditto. of a fit.
1	5 ditto.

viz.

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		<i>viz.</i>	Males.	Females.
Under	1 month,		0.	0.
Between	1 and 2 months,	1.		1.
	2 and 3,		1.	0.
	3 and 6,		2.	2.
	6 and 9,		12.	10.
	9 and 12,		6.	16.
Total			22.	29.

TABLES of the COMPARATIVE MORTALITY of the
MEASLES from 1768 to 1774, collected from the
Register of the Collegiate Church in MANCHESTER.

T A B L E I.

Ages.	Males.	Fe- males.	Seasons.	Total of Deaths by all Diseases, during 6 Years.
From Birth to 3 Months	1.	1.	Jan. } Feb. } 17. March }	
From 3 Months to 6 Months	3.	0.	April } May } 51. June }	
1 Year	6.	4.	July } Aug. } 16. Sep. }	
2.	17.	14.	Oct. } Nov. } 7. Dec. }	
3.	17.	8.		
4.	4.	3.		
5.	2.	7.		
10.	0.	2.		
20.	0.	1.		
30.	0.	1.		
Total	50.	41.	91*.	3807.

THIS

* THIS, like the first table of the small-pox, differs in the
total of deaths by the measles, from the printed bills of mor-
tality.

THIS table requires no comments. The proportional mortality of the measles, in the several periods of life, and various seasons of the year, is obvious at the first view. It is equally evident also, that this disease differs from the small-pox, in being much more fatal to males than to females.

DURING the spring and summer months of the year 1774, the measles were epidemical in Manchester, and proved fatal to a considerable number of children. They were of the regular kind, so well described by Sydenham; but it was not unusual for violent peripneumonic symptoms to occur, five, six, or even eight days after the disappearance of the eruption. Under these circumstances venæsection, blisters, and the Seneka root were found to be very efficacious remedies.

talitv. I have therefore desired Mr. Holme, one of the clerks of the collegiate church, a very intelligent man and a good arithmetician, to revise the church register; and after the most careful inspection, he assures me, that the numbers in both tables are perfectly accurate. He says, "The printed bills of mortality are exact as to the number of deaths, and the division of males and females; but when the disorders are counted over, and the general amount is taken, there is often a mistake in the sum total. And, as it is a great trouble and difficulty to discover wherein the error lies, and as few persons pay any regard to this part of the bills, it is common to add the number deficient to some of the disorders, so as to make the whole agree."

I prescribed

I prescribed the Peruvian bark with great success to many of my patients under the measles, combining it with demulcents, and the saline mixture; and premising venæsection when the signs of inflammation were urgent. The practice of giving the bark in this disease was first introduced by Dr. Cameron, a very eminent physician at Worcester. He observes that it prevents the recession of the morbid acrimony, and continues the efflorescence on the skin, sometimes so long as the twelfth day (*i*). By this salutary operation, the cough and other inflammatory symptoms are in a great measure obviated; and the patient is freed from all danger of a peripneumony, the fatality of which Sydenham describes in such strong terms. It is many years since I first adopted the method of cure recommended by Dr. Cameron; and experience has afforded me the fullest conviction of its safety and efficacy, in all ordinary cases. During the late epidemic, not a single instance occurred to me of the peripneumony succeeding the measles, when the bark had been employed. But my assistance was desired in the last stage of fifteen unfortunate cases of this kind, in which the common antiphlogistic and pectoral course had been pursued.

(*i*) Medical Museum, vol. I. No. 37, p. 281.

THE measles, when violent in degree, or ill treated, frequently lay the foundation of hectic fevers, or pulmonary consumptions. For as the infection is most probably conveyed by inspiration, the lungs become inflamed, a cough ensues, tubercles or a vomica are formed, and the patient sinks under a lingering, painful, and incurable disease. To obviate these evils, inoculation was proposed about fifteen years ago, and practised, in several instances, with considerable success by Dr. Home. The soreness of the eyes was mitigated by it, the cough abated, and the fever rendered less severe. His method of communicating the infection was by applying, to an incision in each arm, cotton moistened with the blood of a patient labouring under the measles (*k*). But the morbillous matter has since been ingrafted by means of lint, wet with the tears, which flow from the eyes in the first stage of this disorder. For these laudable endeavours to extend the benefits of inoculation, the public is highly indebted to Dr. Home; and it is to be lamented, that so little attention has been paid to this valuable improvement of the healing art.

THE following table shews the annual medium of deaths by the small-pox and measles, from 1754 to 1774, compared with the deaths under

(*k*) Home's Medical Facts and Experiments.

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two years of age by all diseases, and with the general amount of births and deaths during the same period of time. It is collected from the printed bills of mortality, published yearly at Manchester.

T A B L E II.

Years.	Small-Pox.	Measles.	Under 2 Years of Age.	Total of Deaths.	Births.
From 1754 to 1758	64.	21.	209.	651.	678.
to 1764*	95.	10.6.	213.	639.	731.
to 1769.	98.	9.6.	229.	659.	827.
to 1774.	102.	21.6.	242.	651.	1002.
Total	359.	62.8.	893.	2600.	3238.

THIS table comprehends so long a term of years, that the inferences which it affords would be no less indubitable than important, if we could entirely rely upon the accuracy of the printed bills of mortality. I apprehend, however, the errors of these bills are not considerable;

* I AM not in possession of the bill of mortality for the year 1760; which is therefore omitted in this table.

and

and that the following conclusions, with respect to Manchester, may be admitted as approaching very near to TRUTH.

I. ONE in *nine*, of all whose births are registered at baptism, dies of the SMALL-POX; and nearly *one* in *fifty-two* of the MEASLES. It should be observed, that the births considerably exceed the burials at Manchester.

II. THE deaths by the MEASLES are to the deaths by the SMALL-POX, as *one* to *five* and *eight tenths*.

III. THE number dying under two YEARS OF AGE, of all diseases, is to the number baptized, as *one* to *three* and *six tenths*.

IV. THE number dying under two YEARS OF AGE is to the total number of deaths, as *one* to *two* and *nine tenths*.

V. THE deaths by the SMALL-POX are to the deaths by all diseases, nearly as *one* to *seven* and *a quarter*.

VI. NEARLY *three fifths* of those who are carried off by the SMALL-POX die under the age of two years (see table I. of the small-pox); and *one* in *four* of all that die under two years of age fall victims to this disease.

VII. HALF of the deaths occasioned by the MEASLES happen under two years of age; and the proportion which this number bears to the general